HYDRIC SOIL INTERPRETATIONS
HYDRIC SOILS LIST
Traill County, North Dakota

In this section, hydric soils are defined and described and the hydric soils in the survey area are listed. The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for each of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 1995). These criteria are used to identify a phase of a soil series that normally is associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (USDA, 1999) and " Keys to Soil Taxonomy"’ (USDA, 1998) and in the "Soil Survey Manual" (USDA, 1993).

If soils are wet enough for a long enough period to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils in this survey area are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and others, 1996).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

Map units in the Hydric Soil Interpretations table meet the definition of hydric soils and, in addition, have at east one of the hydric soil indicators. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; Hurt and others, 1996).

Map units that are made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

These map units, in general, do not meet the definition of hydric soils because they do not have one of the hydric soil indicators. A portion of these map units, however, may include hydric soils. Onsite investigation is recommended to determine whether hydric soils occur and the location of the included hydric soils.

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Map symbol and map unit name	Component	Hydric	Local landform	Hydric soils criteria			
				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
Ar: ARVESON FINE SANDY LOAM	ARVESON	Yes	depression	2B3	YES	NO	NO
As: ARVESON LOAM	ARVESON	Yes	depression	2B3	YES	NO	NO
AvB: ARVILLA SANDY LOAM, 1 TO 6 PERCENT SLOPES	ARVILLA	No	---	---	---	---	---
Bd: BEARDEN SILT LOAM, SALINE	BEARDEN	No	---	---	---	---	---
Be: BEARDEN SILTY CLAY LOAM	BEARDEN	No	---	---	---	---	---
Bg: BEARDEN SILTY CLAY LOAM, CLAY SUBSTRATUM	BEARDEN	No	---	---	---	---	---
Bn: BEARDEN-LINDAAS SILTY CLAY LOAMS	BEARDEN	No	---	---	---	---	---
	LINDAAS	Yes	depression	2B3,3	YES	NO	YES
Bo: BEARDEN-OVERLY SILTY CLAY LOAMS	BEARDEN	No	---	---	---	---	---
	OVERLY	No	---	---	---	---	---
Bp: BEARDEN-PERELLA SILTY CLAY LOAMS	BEARDEN	No	---	---	---	---	---
	PERELLA	Yes	depression	2B3,3	YES	NO	YES
Bs: BEARDEN AND GLYNDON SILT LOAMS	BEARDEN	No	---	---	---	---	---
	GLYNDON	No	---	---	---	---	---
Bt: BEOTIA SILT LOAM	BEOTIA	No	---	---	---	---	---
Bu: BOHNSACK LOAM	BOHNSACK	No	---	---	---	---	---
Bv: BOHNSACK-TIFFANY LOAMS	BOHNSACK	No	---	---	---	---	---
	TIFFANY	Yes	depression	2B3,3	YES	NO	YES
Bw: BORUP SILT LOAM	BORUP	Yes	depression	2B3	YES	NO	NO
Bx: BORUP SILT LOAM, SALINE	BORUP	Yes	depression	2B3	YES	NO	NO
CaA: CASHEL SILTY CLAY, 1 TO 3 PERCENT SLOPES	CASHEL	No	---	---	---	---	---
CaC: CASHEL SILTY CLAY, CHANNELED	CASHEL	No	---	---	---	---	---
	CHANNELED	---	---	---	---	---	---
Co: COLVIN SILT LOAM	COLVIN	Yes	lake plain	2B3	YES	NO	NO
Cs: COLVIN SILT LOAM, SALINE	COLVIN	Yes	lake plain	2B3	YES	NO	NO
Cu: ENDOAQUENTS	CUT AND FILL LAND	No	---	---	---	---	---
Dd: DIVIDE LOAM	DIVIDE	No	---	---	---	---	---
Do: DORAN CLAY LOAM	DORAN	No	---	---	---	---	---

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Map symbol and map unit name	Component	Hydric	Local landform	Hydric soils criteria			
				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
Dv:							
DOVRAY SILTY CLAY	DOVRAY	Yes	depression	2B3,3	YES	NO	YES
EdA:							
EGELAND LOAM, 1 TO 3 PERCENT SLOPES	EGELAND	No	---	---	---	---	---
EgA:							
EGELAND-EMBDEN FINE SANDY LOAMS, 1 TO 3 PERCENT SLOPES	EGELAND	No	---	---	---	---	---
	EMBDEN	No	---	---	---	---	---
EgB:							
EGELAND-EMBDEN FINE SANDY LOAMS, 3 TO 6 PERCENT SLOPES	EGELAND	No	---	---	---	---	---
	EMBDEN	No	---	---	---	---	---
Em:							
EMBDEN FINE SANDY LOAM	EMBDEN	No	---	---	---	---	---
En:							
EMBDEN VERY FINE SANDY LOAM	EMBDEN	No	---	---	---	---	---
Eo:							
EMRICK LOAM	EMRICK	No	---	---	---	---	---
EpA:							
EMRICK-HEIMDAL LOAMS, 1 TO 3 PERCENT SLOPES	EMRICK	No	---	---	---	---	---
	HEIMDAL	No	---	---	---	---	---
FaA:							
FAIRDALE SILT LOAM, 1 TO 3 PERCENT SLOPES	FAIRDALE	No	---	---	---	---	---
Fb:							
FARGO SILTY CLAY LOAM	FARGO	Yes	lake plain	2B3	YES	NO	NO
Fc:							
FARGO SILTY CLAY	FARGO	Yes	lake plain	2B3	YES	NO	NO
Fd:							
FARGO-DOVRAY SILTY CLAYS	FARGO	Yes	lake plain	2B3	YES	NO	NO
	DOVRAY	Yes	depression	2B3,3	YES	NO	YES
Fe:							
FARGO-ENLOE SILTY CLAY LOAMS	FARGO	Yes	lake plain	2B3	YES	NO	NO
	ENLOE	Yes	depression	2B3,3	YES	NO	YES
Fg:							
FARGO-ENLOE SILTY CLAYS	FARGO	Yes	lake plain	2B3	YES	NO	NO
	ENLOE	Yes	depression	2B3,3	YES	NO	YES
Fh:							
FARGO-HEGNE SILTY CLAYS	FARGO	Yes	lake plain	2B3	YES	NO	NO
	HEGNE	Yes	lake plain	2B3	YES	NO	NO
Fn:							
FARGO-RYAN SILTY CLAYS	FARGO	Yes	flood plain	2B3	YES	NO	NO
	RYAN	Yes	flood plain	2B3	YES	NO	NO
Ga:							
GALCHUTT-FARGO COMPLEX	GALCHUTT	No	---	---	---	---	---
	FARGO	Yes	lake plain	2B3	YES	NO	NO
Gd:							
GARDENA SILT LOAM	GARDENA	No	---	---	---	---	---
GeB:							
GARDENA-ECKMAN SILT LOAMS, 3 TO 6 PERCENT SLOPES	GARDENA	No	---	---	---	---	---
	ECKMAN	No	---	---	---	---	---

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Map symbol and map unit name	Component	Hydric	Local landform	Hydric soils criteria			
				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
GfC:							
GARDENA-ZELL SILT LOAMS, 6 TO 9 PERCENT SLOPES	GARDENA	No	---	---	---	---	---
	ZELL	No	---	---	---	---	---
Gg:							
GILBY LOAM	GILBY	No	---	---	---	---	---
Gh:							
GILBY-TONKA COMPLEX	GILBY	No	---	---	---	---	---
	TONKA	Yes	depression	2B3,3	YES	NO	YES
Gk:							
GILBY-TONKA COMPLEX, SALINE	GILBY	No	---	---	---	---	---
	TONKA	Yes	depression	2B3,3	YES	NO	YES
Gm:							
GLYNDON SILT LOAM	GLYNDON	No	---	---	---	---	---
Gn:							
GLYNDON SILT LOAM, SALINE	GLYNDON	No	---	---	---	---	---
Go:							
GLYNDON-PERELLA SILT LOAMS	GLYNDON	No	---	---	---	---	---
	PERELLA	Yes	depression	2B3,3	YES	NO	YES
Gp:							
PITS, GRAVEL AND SAND	GRAVEL PITS	No	---	---	---	---	---
Gr:							
GLYNDON-TIFFANY LOAMS	GLYNDON	No	---	---	---	---	---
	TIFFANY	Yes	depression	2B3,3	YES	NO	YES
Gs:							
GRANO SILTY CLAY	GRANO	Yes	depression	2B3,3	YES	NO	YES
GwA:							
GREAT BEND SILTY CLAY LOAM, 1 TO 3 PERCENT SLOPES	GREAT BEND	No	---	---	---	---	---
GwC:							
GREAT BEND SILTY CLAY LOAM, 6 TO 9 PERCENT SLOPES	GREAT BEND	No	---	---	---	---	---
GwD:							
GREAT BEND SILTY CLAY LOAM, 9 TO 15 PERCENT SLOPES	GREAT BEND	No	---	---	---	---	---
Ha:							
HAMAR LOAMY FINE SAND	HAMAR	Yes	depression	2B3	YES	NO	NO
Hb:							
HAMERLY-TONKA CLAY LOAMS	HAMERLY	No	---	---	---	---	---
	TONKA	Yes	depression	2B3,3	YES	NO	YES
Hc:							
HAMERLY-TONKA CLAY LOAMS, SALINE	HAMERLY	No	---	---	---	---	---
	TONKA	Yes	depression	2B3,3	YES	NO	YES
HeA:							
HECLA LOAMY FINE SAND, 1 TO 3 PERCENT SLOPES	HECLA	No	---	---	---	---	---
HfA:							
HECLA FINE SANDY LOAM, 1 TO 3 PERCENT SLOPES	HECLA	No	---	---	---	---	---
HmB:							
HECLA-MADDOCK SANDY LOAMS, 1 TO 6 PERCENT SLOPES	HECLA	No	---	---	---	---	---
	MADDOCK	No	---	---	---	---	---

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Map symbol and map unit name	Component	Hydric	Local landform	Hydric soils criteria			
				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
Hn: HEGNE-ENLOE SILTY CLAYS	HEGNE	Yes	lake plain	2B3	YES	NO	NO
	ENLOE	Yes	depression	2B3,3	YES	NO	YES
Ho: HEGNE-FARGO SILTY CLAYS	HEGNE	Yes	lake plain	2B3	YES	NO	NO
	FARGO	Yes	lake plain	2B3	YES	NO	NO
HrB: HEIMDAL-EMRICK LOAMS, 3 TO 6 PERCENT SLOPES	HEIMDAL	No	---	---	---	---	---
	EMRICK	No	---	---	---	---	---
HsC: HEIMDAL-ESMOND LOAMS, 6 TO 9 PERCENT SLOPES	HEIMDAL	No	---	---	---	---	---
	ESMOND	No	---	---	---	---	---
La: LADELLE SILTY CLAY LOAM	LADELLE	No	---	---	---	---	---
Lm: LAMOURE SILT LOAM	LAMOURE	Yes	flood plain	2B3	YES	NO	NO
Ln: LANKIN LOAM	LANKIN	No	---	---	---	---	---
Lp: LA PRAIRIE SILT LOAM	LA PRAIRIE	No	---	---	---	---	---
Lu: LUDDEN SILTY CLAY	LUDDEN	Yes	flood plain	2B3,4	YES	YES	NO
M-W: MISCELLANEOUS WATER	MISCELLANEOUS WATER	Yes	depression	2B3,3	YES	NO	YES
Ma: SOUTHAM SOILS	MARSH	Yes	depression	2B3,3	YES	NO	YES
Na: NAHON SILT LOAM	NAHON	No	---	---	---	---	---
NuA: NUTLEY SILTY CLAY, 1 TO 3 PERCENT SLOPES	NUTLEY	No	---	---	---	---	---
NuB: NUTLEY SILTY CLAY, 3 TO 6 PERCENT SLOPES	NUTLEY	No	---	---	---	---	---
NuC: NUTLEY SILTY CLAY, 6 TO 9 PERCENT SLOPES	NUTLEY	No	---	---	---	---	---
NuD: NUTLEY SILTY CLAY, 9 TO 15 PERCENT SLOPES	NUTLEY	No	---	---	---	---	---
NuE: NUTLEY SILTY CLAY, 15 TO 25 PERCENT SLOPES	NUTLEY	No	---	---	---	---	---
Oa: OJATA SILTY CLAY LOAM	OJATA	Yes	flat	2B3	YES	NO	NO
Or: OVERLY SILTY CLAY LOAM	OVERLY	No	---	---	---	---	---
Os: OVERLY-FARGO COMPLEX	OVERLY	No	---	---	---	---	---
	FARGO	Yes	lake plain	2B3	YES	NO	NO
OvB: OVERLY-GREAT BEND SILTY CLAY LOAMS, 3 TO 6 PERCENT SLOP ES	OVERLY	No	---	---	---	---	---
	GREAT BEND	No	---	---	---	---	---
Pe: PERELLA SILT LOAM	PERELLA	Yes	depression	2B3,3	YES	NO	YES

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Map symbol and map unit name	Component	Hydric	Local landform	Hydric soils criteria			
				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
Pr: PLAYMOOR SILTY CLAY LOAM	PLAYMOOR	Yes	flood plain	2B3	YES	NO	NO
ReA: RENSHAW LOAM, 1 TO 3 PERCENT SLOPES	RENSHAW	No	---	---	---	---	---
Ro: ROCKWELL FINE SANDY LOAM	ROCKWELL	Yes	flat	2B3	YES	NO	NO
SmB: SERDEN-MADDOCK LOAMY SANDS, 1 TO 6 PERCENT SLOPES	SERDEN	No	---	---	---	---	---
	MADDOCK	No	---	---	---	---	---
SrB: SIOUX-ARVILLA COMPLEX, 1 TO 6 PERCENT SLOPES	SIOUX	No	---	---	---	---	---
	ARVILLA	No	---	---	---	---	---
Sv: SWENODA FINE SANDY LOAM	SWENODA	No	---	---	---	---	---
Sw: SWENODA LOAM	SWENODA	No	---	---	---	---	---
Tf: TIFFANY LOAM	TIFFANY	Yes	depression	2B3,3	YES	NO	YES
To: TONKA SILT LOAM	TONKA	Yes	depression	2B3,3	YES	NO	YES
TrA: TOWNER SANDY LOAM, 1 TO 3 PERCENT SLOPES	TOWNER	No	---	---	---	---	---
Ud: UDORTHENTS	UDORTHENTS	No	---	---	---	---	---
Un: ULEN FINE SANDY LOAM	ULEN	No	---	---	---	---	---
Vd: VALLERS-DORAN CLAY LOAMS	VALLERS	Yes	flat	2B3	YES	NO	NO
	DORAN	No	---	---	---	---	---
Vk: VIKING CLAY	VIKING	Yes	lake plain	2B3	YES	NO	NO
W: WATER	WATER	Yes	depression	2B3,3	YES	NO	YES
WaA: WAHPETON SILTY CLAY, 1 TO 3 PERCENT SLOPES	WAHPETON	No	---	---	---	---	---
Wh: WHEATVILLE SILT LOAM	WHEATVILLE	No	---	---	---	---	---
Wn: WYNDMERE FINE SANDY LOAM	WYNDMERE	No	---	---	---	---	---
Wo: WYNDMERE LOAM	WYNDMERE	No	---	---	---	---	---
Ws: WYNDMERE LOAM, SALINE	WYNDMERE	No	---	---	---	---	---
Wt: WYNDMERE-TIFFANY FINE SANDY LOAMS	WYNDMERE	No	---	---	---	---	---
	TIFFANY	Yes	depression	2B3,3	YES	NO	YES
ZeE: ZELL SILT LOAM, 9 TO 25 PERCENT SLOPES	ZELL	No	---	---	---	---	---

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Map symbol and map unit name	Component	Hydric	Local landform	Hydric soils criteria			
				Hydric criteria code	Meets saturation criteria	Meets flooding criteria	Meets ponding criteria

FOOTNOTE: There may be small areas of included soils or miscellaneous areas that are significant to use and management of the soil; yet are too small to delineate on the soil map at the map's original scale. These may be designated as spot symbols and are defined in the published Soil Survey Report or the USDA-NRCS Technical Guide, Part II.
Areas mapped as water or any map unit that contains one of the following conventional symbols is considered a hydric soil map unit: marshes or swamps; wet spots; depressions; streams, lakes and ponds.

1. All Histosols except Folists, or

2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Aquisalids, Pachic subgroups, or Cumulic subgroups that are:

   a. Somewhat poorly drained with a water table equal to 0.0 foot (ft) from the surface during the growing season, or

   b. poorly drained or very poorly drained and have either:

      (1) water table equal to 0.0 ft during the growing season if textures are coarse sand, sand, or fine sand in all layers within 20 inches (in),

      or for other soils

      (2) water table at less than or equal to 0.5 ft from the surface during the growing season if permeability is equal to or greater than 6.0 in/hour (h) in all layers within 20 in, or

      (3) water table at less than or equal to 1.0 ft from the surface during the growing season if permeability is less than 6.0 in/h in any layer within 20 in, or

3. Soils that are frequently ponded for long duration or very long duration during the growing season, or

4. Soils that are frequently flooded for long duration or very long duration during the growing season.